SHUBIN, V. T.

Growth - Study and Teaching

Method of teaching the subject "Physiological characteristics of the growing organism" (8th grade), Est. v shkole No. 2, 1952.

9. Monthly List of Russian Accessions, Library of Congress, July 1952 1953, Uncl.

SHUBIN, V.I.

Studies on the subject of the respiratory organs; 7th class. Est. v shkole no.4:62-72 Jl-Ag '53. (MLRA 6:6)
(Respiratory organs)

SHUBIN, V.I.

General survey of the structure and the functions of a human organism. (MLRA 7:8)
Est. v shkole no.4:64-74 Jl-Ag '54.
(Anatomy, Human--Study and teaching) (Physiology--Study and teaching)

SHUBIN, V.I.

More attention to the theoretical foundations of specialized methodology. Est.v shkole no.1:84-88 Ja-F '56. (MLRA 9:5)
(Teaching)

SHUBIN, V.I.

All-Union Agricultural Exhibition of 1957. Biol. v shkole no.5: 90-93 S-O '57. (MLRA 10:9)
(Moscow--Agricultural exhibitions)

SHUBIN, V.I.

Valuable monograph on the origin of man ("Origin of man" by M.F. Nesturkh. Reviewed by V.I. Shubin). Biol. v shkole no.5: 85-89 S-O '58. (MIRA 11:11)
(Man--Origin) (Nesturkh, M.F.)

SHUBIN, V.I., uchitel'

Lessons in studying the origin and development of life on Earth. Biol. v shkole 6:25-32 N-D '58. (MIRA 11:11)

1. Srednyaya shkola No.466, g.Moskva.
(Evolution--Study and teaching)

SHUBIN, V.I., uchitel' biologii

"Darwin, Darwinism and philosophy" by G. Platonov. Reviewed by V.I.Shubin. Biol.v shkole no.1:92-95 Ja-F '60. (MIRA 13:5)

1. Srednyaya shkola No.466, gorod Moskva.
(Biology--Philosophy)
(Platonov, G.)

SHUBIN, V. I. (Moskva)

Lessons on the subject "Blood circulation organs." Biol. v shkole no.5:35-41 S-O '60. (MIRA 13:11)
(Cardiovascular system--Study and teaching)

BUDNIKOV, P.P.; SHUBIN, V.I.; LEPESHOVA, V.I.

Nature of adhesion between basic refractories and portland cement clinkers. Zhur.prikl.khim. 38 no.6:1193-1198 Je '65. (MIRA 18:10)

SHUBIN, V.I.

Determining fire shrinkage and the refractory properties of materials by means of motion-picture photography. Ogneupory 30 no.6:15-16 '65. (MIRA 19:1)

1. Vsesoyuznyy gosudarstvennyy nauchno-issledovatel'skiy institut tsementnoy promyshlennosti.

SHUBIN, V. M., Cand Tech Sci, "~~Investigation~~ Study of a the Brake-less method used in ~~the~~ breaking in and checking of ~~the~~ D-54 engines in kolkhozes and sovkhozes." [Volgograd], 1961. (Min of Agr RSFSR. Volgograd Agr Inst). (KL-DV, 11-61, 224).

LIPCHIN, N.N. (Perm'); OSLON, N.L. (Perm'); SHUBIN, V.N. (Perm');
KHUDEN'KIKH, V.P. (Perm')

Effect of vanadium on the phase recrystallization of steel. Izv. AN SSSR. Met. no.3:140-145 My-Je '65. (MIRA 18:7)

BRUSENTSEVA, S.A.; DOBREV, D.D.; SHUBIN, V.N.; DOLIN, P.I.

Radiation-chemical oxidation of potassium iodide in solutions saturated with nitrous oxide. Dokl. AN SSSR 162 no.5:1083-1085 Je '65.(MIRA 18:7)

1. Institut elektrokhimii AN SSSR. Submitted December 26, 1964.

SHUBIN, V. N.

Shubin, V. N. - "New developments in the use of pentothal by intravenous injection", Trudy Astrakh. gos. med. in-ta, Vol. IX, 1948, p. 182-83.

SO: U-3042, 11 March 53, (Letopis 'Zhurnal 'nykh Statey, No. 8, 1949).

SHUBIN, V.N., professor (Kazan').

Organization of the prevention and therapy of endarteritis obliterans. (MLRA 6:6)
Khirurgiia no.3:61-63 Mr '53. (Arteries--Diseases)

KHARITONOV, I.F., doktor med.nauk (Kazan'); RATNER, Yu.A., prof. (Kazan');
SHUBIN, V.N., prof. (Kazan'); SHULUTKO, L.I., prof. (Kazan');
ROZENGARTEN, M.Yu. (Kazan')

Twenty-seventh All-Union Congress of Surgeons. Kaz.med.zhur. no.5:
96-99 S-O '60. (MIRA 13:11)
(SURGERY--CONGRESSES)

SHUBIN, V.N., prof. (Kazan')

Kazan Medical Institute. Kaz.Med.zhur. no.5:100-102 S-O '60.
(MIRA 13:11)

(TATAR A.S.S.R.--MEDICINE)

ZHUCHKOVA, N.I.; SHUBIN, V.N.

Professor N.A.Gerken as a surgeon and civic worker. Nauch. trudy Kaz. gos. med. inst. 14:29-30 '64. (MIRA 18:9)

1. Kafedra organizatsii zdravookhraneniya s istoriyey meditsiny (zav. - prof. T.D.Epshteyn) i kafedra obshchey khirurgii (zav. - prof. V.N.Shubin) Kazanskogo meditsinskogo instituta.

SHUB.N, V.N.

Operability of surgical patients. Nauch. trudy Kaz. gos. med. inst. 14:575-577 '64. (MIRA 18:9)

1. Kafedra obshchey khirurgii (zav. - prof. V.N.Shubin) Kazanskogo meditsinskogo instituta.

GVOZDEV, B. A., SHUBIN, V. N.

"The Effect of Accelerated Electrons on Solutions of $KMnO_4$" p.73

Trudy Transactions of the First Conference on Radioaction Chemistry, Moscow, Izd-vo AN SSSR, 1958. 330pp.
Conference -25-30 March 1957, Moscow

SHUBIN, V N

p 3

PHASE I BOOK EXPLOITATION 790

Akademiya nauk SSSR. Otdeleniye khimicheskikh nauk

Deystviye ioniziruyushchikh izlucheniy na neorganicheskiye i organicheskiye sistemy (Effect of Ionizing Radiation on Inorganic and Organic Systems) Moscow. Izd-vo AN SSSR, 1958. 416 p. 7,000 copies printed.

Resp. Ed.: Pshezhetskiy, S. Ya.; Ed. of Publishing House: Bugayenko, L.T.; Tech. Ed.; Prusakova, T. A.

PURPOSE: This publication is for scientists working in the field of radiochemistry.

COVERAGE: This collection of articles represents contributions of Soviet scientists in the field of radiochemistry. The papers are concerned with the effect of ionizing radiation on organic and inorganic substances in solutions and in the solid phase. These papers were completed in the years 1951 - 1956 at the Institute of Physical Chemistry, AS USSR, the Institute of Physics and Chemistry imeni L. Ya. Karpov, the Moscow State University, and other scientific institutions. Most of these works are a continuation of those published in "Sbornik rabot po radiatsionnoy khimii" published in 1955. Ts. I. Zalkind and Yu. M. Malinskiy cooperated in the editing of this symposium.

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Effect of Ionizing Radiation (Cont.)

TABLE OF CONTENTS:

PART 1. REACTIONS IN AQUEOUS SOLUTIONS AND RADIATION AND ELECTRO-CHEMICAL PROCESSES

5 (4), 5(2), 21 (8)
AUTHORS: Shubin, V. N., Dolin, P. I. SOV/20-125-6-35/61

TITLE: The Oxidizing Properties of Atomic Hydrogen in the Oxidation of Bivalent Ferrous Ions by Radiation (Okislitel'nyye svoystva atomarnogo vodoroda pri radiatsionnom okislenii ionov dvukhvalentnogo zheleza)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 6, pp 1298-1300 (USSR)

ABSTRACT: In the present paper the result obtained by the investigation of Mohr-salt in an acid solution under the influence of γ-radiation of Co^{60} (3.10^{15} ev/cm^3.sec) is investigated. The experimental apparatus is shown by figure 1. Hydrogen pressure was varied between 1 and 180 at. For each hydrogen concentration the initial sections of the oxidation curve were plotted. As shown by figure 2, there is no connection between the course of oxidation and the concentration of hydrogen. This corresponds to the following development of the reaction: $H_2O \xrightarrow{\gamma} OH, H_2O_2, H, H_2$; $H_2 + OH \longrightarrow H_2O + H$; $H + H^+ \longrightarrow H_2^+$; $Fe^{2+} + H_2^+ \longrightarrow Fe^{3+} + H_2$. There are 2 figures and

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The Oxidizing Properties of Atomic Hydrogen in the Oxidation of Bivalent Ferrous Ions by Radiation SOV/20-125-6-35/61

3 references, 1 of which is Soviet.

PRESENTED: January 21, 1959, by A. N. Frumkin, Academician

SUBMITTED: January 19, 1959

Card 2/2

S/076/60/034/011/010/024
B004/B064

AUTHORS: Shubin, V. N. and Dolin, P. I. (Moscow)

TITLE: Oxidative Properties of Atomic Hydrogen in Radiation Oxidation of Bivalent Iron Ions

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 11, pp. 2480-2488

TEXT: This paper gives a report on measurements of the oxidation of bivalent iron under the action of gamma radiation of Co^{60} (dose rate, approximately 3.10^{15} ev/cm^3.sec) at a hydrogen pressure of 1-180 atm in the absence and presence of oxygen. Mohr's salt $Fe(NH_2)_2(SO_4)_2$, with a concentration of $1.3 \cdot 10^{-3}$ M was irradiated in 0.8 N H_2SO_4. The concentration of the Fe^{3+} ions forming as a result of irradiation was determined with a spectrophotometer. The values of fresh solutions of Mohr's salt were well reproducible. The Fe^{3+} yield is affected neither by the Fe^{3+} concentration nor by the concentration and pressure of H_2. The following

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Oxidative Properties of Atomic Hydrogen in Radiation Oxidation of Bivalent Iron Ions

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B004/B064

reactions are assumed: $H_2O \overset{\gamma}{\sim\!\!\sim\!\!\rightarrow} OH, H, H_2O_2, H_2$ (0); $Fe^{2+} + OH \xrightarrow{K_1} Fe^{3+} + OH^-$ (1); $Fe^{2+} + H_2O_2 \xrightarrow{K_2} Fe^{3+} + OH^- + OH$ (2); $H_2 + OH \xrightarrow{K_3} H_2O + H$ (3); $H + H^+ \xrightarrow{K_4} H_2^+$ (4); $Fe^{2+} + H_2^+ \xrightarrow{K_5} Fe^{3+} + H_2$ (5), or $Fe^{2+} + H + H^+ \xrightarrow{K_5'} Fe^{3+} + H_2$ (5a). The experimental data show that, irrespective of its origin atomic hydrogen is capable of oxidizing to Fe^{2+}. The assumption of a participation of water molecules is not necessary to explain the high yield of oxidation. In the presence of O_2, the oxidation proceeds as a chain reaction. Proceeding from the experimental data the following values were calculated: $K_3/K_1 = 0.135$ which is in good agreement with the values previously obtained; $K_1 = 1.65 \cdot 10^4$ l/mole·sec. $K_4 = 2 \cdot 10^4$ l/mole.sec. The constancy of K_4 confirms the accuracy of the reaction scheme suggested. On the basis of the data of F. Dainton and H. Sutton (Ref. 10), a kinetic calculation was made and, thus, indirectly proved that the Fe^{2+} oxidation by atomic oxygen takes place according to the reactions (4) and (5), as

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Oxidative Properties of Atomic Hydrogen in Radiation Oxidation of Bivalent Iron Ions

S/076/60/034/011/010/024
B004/B064

was also assumed by J. Weiss (Ref. 1). There are 6 figures, 1 table, and 15 references: 7 Soviet, 2 US, 5 British, and 1 French.

ASSOCIATION: Akademiya nauk SSSR, Institut elektrokhimii (Academy of Sciences of the USSR, Institute of Electrochemistry)

SUBMITTED: February 14, 1959

Card 3/3

86407
S/020/60/134/004/036/036XX
B004/B067

21.6100

AUTHORS: Shubin, V. N. and Dolin, P. I.

TITLE: Radiative Reduction of Ions of Trivalent Iron in Solutions Saturated With Hydrogen Under Pressure

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 134, No. 4, pp. 891-894

TEXT: The present study is based upon the fact that the investigations of the characteristiv values kinetic of Fe^{3+} have hitherto been made for systems with different admixtures (Refs. 1-4) where disturbing side processes may occur. Therefore, the authors measured the reduction of Fe^{3+} in acid solution during the action of gamma radiation of Co^{60}(dose of about 3.10^{15} ev/cm^3.sec) at different hydrogen pressures (up to 150 atm) and at different concentrations of Fe^{3+} and of the acid. The concentration of the resulting Fe^{2+} was determined with o-phenanthroline. The following reaction equations were derived from the experimental results:

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Radiative Reduction of Ions of Trivalent Iron in Solutions Saturated With Hydrogen Under Pressure

S/020/60/134/004/036/036XX
B004/B067

$H_2+OH \xrightarrow{k_1} H_2O$ (1); $H+OH \xrightarrow{k_2} H_2O$ (2); $Fe^{3+}+H \xrightarrow{k_3} Fe^{2+}+H^+$ (3), where the reaction (3) is competitive with (2). The following relation is written next: $k_2/k_1k_3 = \left[G_H+G_{OH} - G(Fe^{2+})\right]\left[H_2\right]\left[Fe^{3+}\right]/\left[G(Fe^{2+})+G_{OH}-G_H\right]G(Fe^{2+}).M$ (I). The divergence between this reaction equation according to which the reduction is independent of the acid concentration, and the experimental data according to which such a dependence exists, is explained by the reaction $Fe^{3+}+HSO_4^- \overset{k_a}{\rightleftharpoons} FeHSO_4^{2+}$. In the presence of $HClO_4$ no complex ion is formed, and the reaction does not depend on the acid concentration. From $\alpha k_2/k_1k_3$, where $\alpha = \left[Fe^{3+}_{summ}\right]/\left[Fe^{3+}_{free}\right]$, the equation $Fe^{3+}_{free} + K_a\left[(f_{HSO_4} - f_{Fe^{3+}})/f_{FeHSO_4^{2+}}\right]\left[HSO_4^-\right]\left[Fe^{3+}_{free}\right] = Fe^{3+}_{summ}$ (II), and the ratios α_1, α_2, α_3

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Radiative Reduction of Ions of Trivalent Iron in Solutions Saturated With Hydrogen Under Pressure

for pH = 0.4, 0.8, and 1.4, K_a was found to be 91 l/mole. Herefrom and from the value for k_1 obtained by L. I. Avraamenko and R. V. Lorentso (Ref. 7) ($2.5 \cdot 10^3$ l/mole·sec) k_2 was found to be $1.4 \cdot 10^{11}$ l/mole.sec, $k_3 = (8 \pm 0.56) \cdot 10^5$ l/mole.sec. There are 3 figures and 7 references: 2 Soviet, 1 US, 2 British, and 1 Czechoslovakian.

ASSOCIATION: Institut elektrokhimii Akademii nauk SSSR (Institute of Electrochemistry of the Academy of Sciences USSR)

PRESENTED: May 20, 1960, by A. N. Frumkin, Academician

SUBMITTED: May 20, 1960

SHUBIN, V. N.

2

Radiation Oxidation of Iron and Chromium Ions in Aqueous Solutions

V. N. Shubin and P. I. Dolin

When H_2 is introduced into the solution, the hydroxyl radical which is formed during the radiolysis of water is partly or completely converted to a hydrogen atom. Complete transformation which can occur with hydrogen under pressure, makes it possible to study reactions between atomic hydrogen and various acceptors without the complicating influence of OH radicals.

If the mechanism of radiolysis involves two reactions which are difficult to separate, it is useful to introduce a third radical acceptor which, as special experiments have proved, reacts with atomic hydrogen. To explain the mechanism in the system thus obtained, it is sufficient to determine the dependence of the radiolysis yield on the

Radiation Chemistry of Water

Monday Afternoon Session A—5—1 (Contd.)

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concentration of all three acceptors. The variation of the yield as a function of concentration of the competing acceptors will be identical, whereas any variation of concentration of the inactive substance will not influence the yield. The qualitative conclusions are borne out by the results of the quantitative analyses used in the investigation of radiolysis of iron and chromium ions.

[redacted]

SESSION A—6—1 : Biochemical Response of Brain and Nerves

(a)

Studies on the Radiopharmacology of the Central Nervous System

S. J. Arbuzov

The distribution of ^{35}S-labelled β-mercapto-ethylamine in the nervous system has been investigated. Three hr after administration, the concentration in the cerebral cortex was found to be higher than that in other tissues. At 6 hr, the amount in the sub-cortical tissues had increased, while, at 24 hr, the drug was concentrated in the brain stem. This drug was found to depress the process of excitation in the cerebral cortex. The sulphur-containing radio-protectors were found to have a sedative action.

Imidasole 2-carbonic acid compounds, owing to their sedative action, prevent both excitation and inhibition in the central nervous system, and so protect against radiation injury. Aminasine and phenatin have been found to reduce the extent of impairment, and shorten the time required for recovery of a number of unconditioned responses.

It is suggested that drugs which affect the passage of the nerve impulse should be investigated.

SHUBIN,V.N.; DOLIN, P.I.

Radiation-induced transformations in a mixture of Fe^{2+} and Fe^{3+} in acid solutions saturated with hydrogen under pressure. Dokl. AN SSSR 138 no.1:169-172 My-Je '61. (MIRA 14:4)

1. Institut elektrokhimii AN SSSR. Predstavleno akademikom A.N.Frumkinym.
(Radiation) (Oxidation-reduction reaction)

SHUBIN, V.N.; DOLIN, P.I.

Effect of acidity on the yield of chemical radiation reactions. Dokl. AN SSSR 139 no.1:154-157 Jl '61. (MIRA 14:7)

1. Institut elektrokhimii AN SSSR. Predstavleno akademikom A.N. Frumkinym.

(Hydrogen--Ion concentration) (Radiochemistry)

29826
S/020/61/140/006/027/030
B107/B101

5.4600 (also 1273, 1304)

AUTHORS: Shubin, V. N., and Dolin, P. I.

TITLE: Radiation-induced transformations of iron ions in perchlorate solutions saturated under pressure with hydrogen and oxygen

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 140, no. 6, 1961, 1380-1383

TEXT: In previous publications, the authors described radiochemical transformations in a system containing Fe^{2+}, Fe^{3+}, H_2, and H^+ (V. N. Shubin, P. I. Dolin, DAN, 138, No. 1 (1961); V. N. Shubin, P. I. Dolin, DAN, 139, No. 1 (1961)). The present paper treats the effect of Co^{60} gamma radiation on aqueous solutions of $Fe(ClO_4)_3$ and $Fe(ClO_4)_2$ saturated under pressure with H_2 and O_2. The concentrations of these substances and the hydrogen ion concentration were varied. The experimental procedure has been described previously (Ref. 8: V. N. Shubin, P. I. Dolin, ZhFKh, 43, 2480 (1960)). The dose rate was $1.75 \cdot 10^{15}$ ev/cm^3.sec. The following radiochemical oxidation mechanism for Fe^{2+} solutions in the presence of O_2

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not by reaction (9). Assuming the yield of the radiolysis to be given by reactions (1) - (8), and (10), the relation between the radiation yields and the rates of the competitive reactions may be expressed by

$$\left(1+\frac{k_6[Fe^{3+}]}{k_1[O_2]}\right)\left(1+\frac{k_8}{k_2}K_{HO_2}\frac{[Fe^{3+}]}{[Fe^{3+}][H^+]}\right)=$$

$$=\frac{[G(Fe^{3+})-G_H-G_{OH}-2G_{H_2O_2}]/(1+k_8[Fe^{3+}]/k_{10}[H_2])}{G(Fe^{3+})-G_H-G_{HO}-2G_{H_2O_2}+2[G_H+(G_{OH}+G_{H_2O_2})/(1+k_8[Fe^{3+}]/k_{10}[H_2])]}+ \quad (I)$$

$$+\frac{4[G_H+(G_{OH}+G_{H_2O_2})/(1+k_3[Fe^{3+}]/k_{10}[H_2])}{G(Fe^{3+})-G_H-G_{OH}-2G_{H_2O_2}+2[G_H+(G_{OH}+G_{H_2O_2})/(1+k_8[Fe^{3+}]/k_{10}[H_2])]}\equiv F(G).$$

From the graphic solution of Eq. (I) using the values given in Table 1 results: $k_6/k_1 = 2.45\cdot10^{-2}$, and $(k_8/k_2)K_{H_2O} \simeq 3.1\cdot10^{-3}$ mole/liter. A further series of measurements showed that the reaction $Fe^{2+} + H = FeH^{2+} \xrightarrow{+H^+} Fe^{3+} + H_2$ may be neglected, i. e that Fe^{2+} does not compete with O_2 for H atoms. In order to verify reactions (2), (7), and (8), the Fe^{3+}

Radiation-induced transformations...

yield was studied as a function of $[H^+]$, $[Fe^{2+}]$, and $[Fe^{3+}]/[O_2]$ = const. (Table 3). The graphic solution of Eq. (I) yielded $k_8 K_{H_2O}/k_2 = 3.6 \cdot 10^{-3}$ mole/liter. This is in good agreement with the values calculated from the data published by Allen and Rotschild. The results show that oxygen is a highly active acceptor of H atoms. It was therefore attempted to determine the influence of excited water molecules on the radiolysis of Fe^{2+} and Fe^{3+} by varying the oxygen concentration. In this case Eq. (I) transforms the inequality

$$\left(1+\frac{k_6[Fe^{3+}]}{k_1[O_2]}\right)\left(1+\frac{k_8}{k_2}K_{H_2O}\frac{[Fe^{3+}]}{[Fe^{3+}][H^+]}\right) > F(G). \qquad (II)$$

Fig. 4 shows the oxidation yield as a function of p_{O_2} up to $[O_2] \simeq 0.1$ M

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Radiation-induced transformations...

(150 atm). Calculation shows that the horizontal section of the curve fulfills the condition (I). Thus, if $[O_2] \leq 0.1$ M, the excited water molecule exerts no influence on the oxidation reaction of Fe^{2+}. Taken summarily, the results of this study show that the radiolysis of solutions containing Fe^{2+} and Fe^{3+} in the presence of O_2 and H_2 is quantitatively described by reactions (1) - (8), and (10). There are 4 figures, 3 tables, and 8 references: 4 Soviet and 4 non-Soviet. The four references to English-language publications read as follows: Ref 3: F. H. Kreuz, H. A. Dewhurst, J. Chem. Phys., 17, 1337, (1949); Ref 4: W. G. Barb, J. H. Bakeudale, P. George, K. R. Hargrave, Trans. Farad. Soc., 47, 591 (1951); Ref 5: A. O. Allen, W. G. Rotschild, Radiation Res., 7, 591 (1957); Ref 6: A. O. Allen, V. D. Hogau, W. G. Rotschild, Radiation Res., 7, 603 (1957).

ASSOCIATION: Institut elektrokhimii Akademii nauk SSSR (Institute of Electrochemistry of the Academy of Sciences USSR)

PRESENTED: April 18, 1961, by A. N. Frumkin, Academician

S/844/62/000/000/019/129
D290/D307

AUTHORS: Shubin, V. N., Dolin, P. I. and Krylova, Z. L.

TITLE: Radiolysis of aqueous solutions of various inorganic substances saturated with hydrogen under pressure

SOURCE: Trudy II Vsesoyuznogo soveshchaniya po radiatsionnoy khimii. Ed. by L. S. Polak. Moscow, Izd-vo AN SSSR, 1962, 129-136

TEXT: The radiolysis of aqueous solutions of inorganic substances was studied by using hydrogen under pressure, by a method described earlier (DAN SSSR, 125, 1294 (1959)). Solutions containing Fe^{3+} ions, a mixture of Fe^{3+} and Fe^{2+} ions, and NO_3^- ions were investigated. The experimentally observed yields of oxidation of Fe^{2+} and reduction of Fe^{3+} can be explained by the occurrence of the reaction:

$$H + H^+ \rightleftharpoons H_2^+$$

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S/844/62/000/000/019/129
D290/D307

Radiolysis of aqueous ...

The yields of reduction of NO_3^- ions in neutral solutions at pressures of hydrogen above 100 atmospheres were about 6 equiv/100 ev and did not depend on the NO_3^- ion concentration in the range 3×10^{-3} to 1 M. Results obtained with solutions of both Fe^{3+} and NO_3^- ions show that the yield of decomposition of water was about 4.2 equiv/100 ev and was constant over the pH range ~1 to 7. There are 9 figures and 3 tables.

ASSOCIATION: Institut elektrokhimii AN SSSR (Institute of Electrochemistry, AS USSR)

Card 2/2

L 16494-65 EPF(c)/EPR/EWG(j)/EWA(h)/EWP(j)/EWT(m)/EWA(l) Pc-4/Pr-4/
Ps-4/Peb DIAAP/RPL RM/WW/JW

ACCESSION NR: AP4042797 S/0020/64/157/003/0664/0667

AUTHORS: Shubin, V.N. B

TITLE: The nature of the reducing particle formed by the action of radiation on water and aqueous solutions

SOURCE: AN SSSR. Doklady*, v. 157, no. 3, 1964, 664-667

TOPIC TAGS: radiolysis, reducing particle formation, atomic hydrogen, polaron, $e^-.nH_2O$, electron water molecule particle, peroxide formation, hydrogen peroxide formation

ABSTRACT: This study was conducted to determine whether the reducing particle formed by radiolysis of aqueous solutions is atomic hydrogen or a free electron reacted with one or more water molecules ($e^-.nH_2O$), a "polaron". If the radiolysis particle is identical to the radical formed by the reaction

(1) $H_2 + OH \rightarrow H_2O + H$,

traces of oxygen would completely suppress the decomposition of peroxide by H atoms; when $[O_2] \geq 0.01 [H_2O_2]$ the yield of H_2O_2 should be independent of oxygen concentration. If the reducing particle is a "polaron", the effect of oxygen on the course of H_2O_2

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L 16494-65
ACCESSION NR: AP4042797

formation would be approximated by the dotted line on the enclosed figure, and involve the following reactions:

$$H_2O_2 + (e^- \cdot nH_2O) \rightarrow OH + OH^-_{aq}, \quad (2)$$

$$O_2(e^- \cdot nH_2O) \rightarrow O^-_{2aq} \quad (3)$$

The effect of oxygen concentration (0.1 to~10 atm.) on H_2O_2 formation under Co^{60} γ-radiation (~1.2 x 10^{15} ev/cm^{3}sec) of neutral aqueous H_2O_2 solution (~10-3M) saturated with hydrogen at 100 atm. was determined. The H_2O_2 yield was constant at 2.45 ± 0.12 mol/100 ev. (solid line in the figure). It was concluded the reducing particle formed is atomic hydrogen, and the rates of the reactions (2) and (3), $k_2/k_3 < 5 \times 10^{-3}$. The results obtained by J. Rabini and G. Stein (J. Chem. Phys., 37, 1865 (1962); Trans. Forad. Soc., 58, 2150 (1962)) on the relationships between hydrogen yield and concentration of acetone or ferricyanide on irradiating aqueous solutions of organic materials are discussed from the viewpoint of the present findings that only one type of radical-reducing agent, atomic hydrogen, is formed on radiolysis. "In conclusion I acknowledge Prof. P.I. Dolin's participation in discussing the results and valuable advice."

Card 2/4

L 16494-65
ACCESSION NR: AP4042797

Orig. art. has: 4 figures and 9 sets of equations.

ASSOCIATION: Institut elektrokhimii Akademii nauk SSSR (Electrochemical Institute Academy of Sciences SSSR)

SUBMITTED: 16Dec63 ENCL: 01

SUB CODE: NP NR REF SOV: 002 OTHER: 005

Card 3/4

L 16494-65
ACCESSION NR: AP4042797

ENCLOSURE: 01

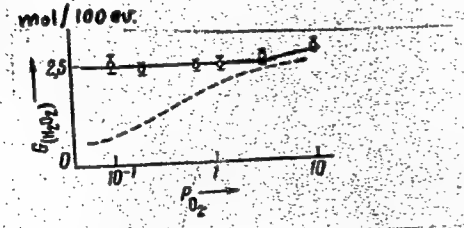


Figure 1
Relationship between yield of H_2O_2 formed and pressure of oxygen over the solution. Dotted line - expected relationship in the case of polaron existence ($k_2/k_3 \simeq 0.5$).

Card 4/4

SHUBIN, V.N.; DOLIN, P.I.

Yield of products from water radiolysis in acid solutions saturated with argon under high pressure. Dokl. AN SSSR 164 no.2:382-383 S '65. (MIRA 18:9)

1. Institut elektrokhimii AN SSSR. Submitted February 23, 1965.

KABAKCHI, S.A.; SHUBIN, V.N.; DOLIN, P.I.

Stationary states in the radiolysis of neutral aqueous solutions of oxygen. Dokl. AN SSSR 165 no.3:601-603 N '65.
(MIRA 18:11)

1. Institut elektrokhimii AN SSSR. Submitted April 23, 1965.

ACC NR: AP6034782 SOURCE CODE: UR/0148/66/000/008/0152/0156

AUTHORS: Lipchin, N. N.; Kokovyakina, S. A.; Shubin, V. N.

ORG: Perm Polytechnic Institute (Permskiy politekhnicheskiy institut)

TITLE: Peculiarities of recrystallization of alloy EI437B

SOURCE: IVUZ. Chernaya metallurgiya, no. 8, 1966, 152-156

TOPIC TAGS: alloy, plastic deformation, crystal lattice deformation, metal crystallization, crystallization, nonuniform grain size, grain size/ EI437B alloy

ABSTRACT: The grain sizes and uniformity in alloys for high-temperature use are discussed. The opinions of investigators on the causes of nonuniformity of grain are varied. The purpose of this study is to investigate the effect of admixture phases of an alloy and plastic deformation on the character of grain growth, and also to clarify the simultaneous effect of these factors on the structure formation of alloy EI437B. For studying the role of dispersed phases, specimens of the alloy were prepared by thermal process according to the 5 procedures shown in Fig. 1, where time and treatment temperature for each of the five are shown. The method of cold deformation was applied to the study of grain size behavior in deformation. Micro- and macro-structure photographs of test specimens are presented, and analysis is made of the joint variation of grain diameter, annealing temperature, and percentage of recrystallization of alloy EI437B. The authors conclude that the nonuniform grain

Card 1/2 UDC: 669.14.018.45:620.181.4

ACC NR: AP6034762

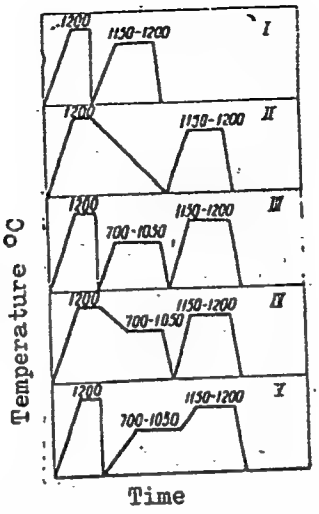


Fig. 1. Diagrams of heat processing of the alloy EI437B

structure in EI437B can occur independently of deformation in the process of secondary recrystallization caused by nonuniform mixing of admixture phases. Conditions of separation and mixing of dispersed phases determine the character of grain growth during thermal processing. Varied graininess in the deformed alloy is conditioned not only by secondary recrystallization, but also by zonal grain embrittlement in regions exposed to critical degrees of deformation. Orig. art. has: 5 figures.

SUB CODE: 11/ SUBM DATE: 12Jul65/ ORIG REF: 005

Card 2/2

SHUBIN, V. P.

"The Question fo Certain Characteristics of Metals in the Presence of Consussion."
Min Higher Education USSR, Tomsk Order of Labor Red Banner Polytechnic Inst imeni
S. M. Kirov, Tomsk, 1952
(Dissertation for the Degree of Doctor of Technical Sciences)

SO: Knizhnaya Letopis', No. 32, 6 Aug 55

SOV/124-57-7-8464

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 7, p 149 (USSR)

AUTHOR: Shubin, V. P.

TITLE: The Compression of Metals Under Impact (Udarnoye szhatiye metallov)

PERIODICAL: Izv. Tomskogo politekhn. in-ta, 1954, Vol 75, pp 235-252

ABSTRACT: A short review of data on impact compression published earlier by other authors. The paper adduces test results on steel, brass, aluminum, copper, zinc, tin, and lead on Amsler's impact-testing machine with various drop heights, various degrees of support rigidity, and various ratios of the height of the test specimen to its diameter. The author examines the influence of the above-indicated factors on the suggested characteristics of an impact, namely, the impact coefficient β and mean resistance of the metal to deformation K

$$\beta = \frac{HQ\sqrt{1-\delta}}{2V_0 E(1-\sqrt{1-\delta})}, \qquad K = \frac{A_1 - A_3}{V_1}$$

Card 1/2 Here Q is the load, H is the drop height, δ is the relative

The Compression of Metals Under Impact

compression under impact, V_o is the volume of the test specimen, V_1 is the displaced volume of the specimen, and A_1 and A_2 the work of the deformation and the rebound of the load. It is shown that the impact work and the relative compression stress increase linearly with an increase in the impact velocity.

V. M. Gol'dfarb

SOV/124-58-10-11673

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 10, p 137 (USSR)

AUTHOR: Shubin, V. P.

TITLE: On the Problem of Exact Formula for Sag (K voprosu o tochnoy formule strely progiba)

PERIODICAL: Sb. nauchn. tr. Tomskiy elektromekhan. in-t inzh. zh. -d. transp., 1957, Vol 23, pp 174-181

ABSTRACT: Employing the exact expression for the curvature the author determines the deflection of a uniformly loaded cantilever beam. Solution is obtained in the form of a series, the first term of which corresponds to the value of the deflection obtained when the curvature is linearized.

B. N. Lopovok

Card 1/1

SHUBIN V. P.

AKSMAN, N.M.; VILENSKIY, L.I.; GORBUNOV, N.G.; GUBSKIY, V.N.; GURVICH, M.D.; LATYSHEV, Yu.M.; LEVONTIN, L.I.; LIVSHITS, T.G.; LOGINOVA, M.K.; LUR'YE, D.A.; LYANDRES, G.D.; MIROSHNICHENKO, G.K.; MOGILEVSKIY, B.Ya.; NEMKOVSKIY, M.I.; ORLEANSKIY, Ya.P.; SAVITSKIY, A.N.; SIMMA, S.F.; SURKOV, G.Z.; SHMYGUL', B.P.; SHUBIN, V.P.; DONSKOY, Ye.Ye., red.izd-va; KAL'NITSKIY, R.Ya., red.izd-va; ZAMAKHOVSKIY, L.S., tekhn.red.

[Mechanization and automation in the machinery industry] Mekhanizatsiia i avtomatizatsiia v stankostroenii. Khar'kov, Khar'kovskoe obl.izd-vo, 1958. 119 p. (MIRA 13:2)

1. Kharkov. Institut "Giprostanok." 2. Direktor instituta "Giprostanok" (for Orleanskiy).
(Machinery industry--Technological innovations)
(Automation)

SHUBIN, V.P., dotsent, kand.tekhn.nauk

Effect of notches on the deformation and strength characteristics of axle steel. Trudy TEIIZHT 25:3-28 '58. (MIRA 13:10)

1. Kafedra stroitel'noy mekhaniki Tomskogo elektromekhanicheskogo instituta inzhenerov zheleznodorozhnogo transporta.
(Steel--Testing) (Deformations (Mechanics))

SOV/137-59-5-10787

Translation from: Referativnyy zhurnal, Metallurgiya, 1959, Nr 5, p 189 (USSR)

AUTHOR: Shubin, V.P.

TITLE: Elastic-Plastic Local Deformations During Impact and Their Connection With the Recovery Coefficient

PERIODICAL: Sb. nauchn. tr. Tomskiy elektromekhanich. in-t zh.-d. transp., 1958, Vol 25, pp 29 - 52

ABSTRACT: The author suggests a semi-empiric theory to determine regularities of elastic-plastic deformations in a metal during an impact. Formulae are given, determining the deformation for the case of collision of steel with steel, cast-iron, Cu, bronze and duraluminum. The investigation of local elastic-plastic deformations by pressing in a ball on a Gagarin press revealed their connection with the recovery coefficient in the collision of two dissimilar materials. Proper recovery coefficients and local elastic-plastic deformations of each of the colliding bodies were considered. The kinetic energy equation and the law of energy conservation were used to derive a general

/B

Card 1/2

SHUBIN, V.P., dotsent, kand.tekhn.nauk

Dynamic stresses in steel compression under the impact. Trudy TEIIZHT 25:53-70 '58. (MIRA 13:10)

1. Kafedra stroitel'noy mekhaniki Tomskogo elektromekhanicheskogo instituta inzhenerov zheleznodorozhnogo transporta.
(Strains and stresses) (Steel)

SHUBIN, V. P. (Assist. Prof.)

"About Certain Rules governing the Development of Cracks due to Impact Fatigue."

report presented at the 13th Scientific Technical Conference of the Kuybyshev Aviation Institute, March 1959.

18 8200

2 326 S/124/61/000/004/031/033
A005/A126

AUTHOR: Shubin, V. P.

TITLE: The shock fatigue of axle steel

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 4, 1961, 52, abstract 4 V 467. (Sb. nauchn. tr. Tomskiy elektromekhan. in-t inzh. zh.-d. transp., 1959, v. 28, 67 - 76)

TEXT: The author compared the bending stresses in axle steel caused by various types of loads; 1) repeated bending shocks; the stresses were measured by resistance pickups; 2) alternating bending with smoothly varying load. He determined the inclined sections of the fatigue curves and the fatigue range limits for 10^5 cycles. It turned out that the dynamic fatigue coefficient (ratio of shock and "static" fatigue limits) is greater than unity for normalized and high-annealed steel, but lower than unity for low-annealed steel. The experimental data corroborate the hypothesis established by N. N. Davidenkov that the carbide hardening (low annealing) does not have time to proceed at high deformation rates (at shock), which are eight times higher than the deformation rates at smooth variation of load.
[Abstracter's note: Complete translation] M. Shashin

Card 1/1

S/123/61/000/002/002/017
A005/A001

Translation from: Referativnyy zhurnal, Mashinostroyeniye, 1961, No. 2, p. 18, # 2A128

AUTHOR: Shubin, V. P.

TITLE: The Regularities of Fatigue Crack Development in Axle Steel

PERIODICAL: "Sb. nauchn. tr. Tomskiy elektromekhan. in-t inzh. zh.-d. transp.", 1959, Vol. 28, pp. 77-87

TEXT: The author observed the development process of the fatigue crack in specimens of the Menagé-type and in cylindric specimens with an annular V-notch at repeated bending impacts with the frequency of 300 impacts per minute. The specimens were produced of axle steel and treated by normalization and hardening with tempering at temperatures of 100-620°C. The crack development was observed from the coloration of the crack's surface resulting from oxidation at heating up to 280-300°C with soaking through 15-20 min during test pauses each time after 150-200 impacts. It turned out that the number of impacts before the origin of fatigue cracks increased with decreasing tempering temperature, but the number of impacts from the instant of the fatigue crack origin to the instant of break-down

Card 1/2

LOGINOV, Mariya Kapitonovna; LUR'YE, Dzhan Aliyevich; NEMKOVSKIY, Mikhail Il'ich; ORLEANSKIY, Yakov Pavlovich; SAVITSKIY, Aron Yakovlevich; SHUBIN, Vladimir Petrovich; MYLKO, M.N., kand. tekhn. nauk, retsenzent; POLYAKOVA, D.I., red.; BYKOVSKIY, A.I., red.; GORNOSTAYPOL'SKAYA, M.S., tekhn. red.

[Album of equipment for the mechanization of foundries]Al'bom sredstv mekhanizatsii liteinykh tsekhov. [By] M.K.Loginova i dr. Moskva, Mashgiz, 1962. 131 p. (MIRA 15:10)
(Foundries--Equipment and supplies)

SHUBIN, V.P., dotsent; NIKITINA, V.N., assistent

Hardness of some bearing plastics and its relationship with ultimate strength in stretching. Izv.vys.uchab.zav.; mashinostr. no.7:62-65 '63. (MIRA 16:11)

1. Kuybyshevskiy aviatsionnyy institut.

ACC NR: AP6032045 SOURCE CODE: UR/0145/66/000/005/0017/0023

AUTHOR: Shubin, V. P. (Lecturer); Nikitina, V. M. (Assistant)

ORG: Kuybyshev Aviation Institute (Kuybyshevskiy aviatsionnyy institut)

TITLE: Determining tangential and normal elasticity moduli and Poisson's ratio of bearing plastics made from polyamides and their variants

SOURCE: IVUZ. Mashinostroyeniye, no. 5, 1966, 17-23

TOPIC TAGS: elastic modulus, elasticity, Poisson coefficient, polyamide, bearing material

ABSTRACT: A method is given for determining Poisson's ratio and the tangential modulus of elasticity for pure polyamide plastics and their derivatives. The unit for testing the specimens for microtorsion and microshear is described. Average values are obtained for the normal and tangential elastic moduli and Poisson's ratios for a series of polyamide plastics used for bearing material. The microdeformation method may be used to minimize the effect of cold creep in plastics under load. This is the reason the values for E, G and μ in the first approximation are close to the natural values. The authors were unable to make a comparison of their results since there is no technical information published on the values of Poisson's ratio or tangential and normal elastic moduli, Orig. art. has: 4 figures, 4 tables, 10 formulas.

SUB CODE: 11, 13/ SUBM DATE: 11Nov63

Card 1/1 UDC: 621.822/678.5

SMELYY, A.S.; SHUBIN, V.V.; KIVSHENKO, A.M.

Thin-layer polyamide coatings. Mashinostroitel' no.12:18 D '63. (MIRA 17:1)

SHUBIN, V.V.

Protection of large surfaces by means of vortex plastic spraying. Mashinostroitel' no.12:38 D '65. (MIRA 18:12)

SHUBIN, V.V.

Polyvinyl-chloride sealing collars. Mashinostroitel' no.12:25 D '64. (MIRA 18:2)

SHUBIN, V.V., inzh.

Experimental installation for applying two-layer polyethylene coatings on mixer shafts. Khim. i neft. mashinostr. no.8:39 Ag '65. (MIRA 18:12)

LAVROV, N.V.; KUCHUK, S.D.; GOL'DFIL'D, M.L.; SHUBIN, V.V.

Using gas as fuel in the transport industry in the Central Asian Economic Region. Gaz. prom. 7 no.12:15-19 '62 (MIRA 17:7)

SHUBIN, V.V.

Leather cuffs should be replaced with rubber cuffs. Elek. i tepl. tiaga 4 no.11:28 N '60. (MIRA 13:12)

1. Tashkentskoye proyektno-konstruktorskoye byuro Glavnogo upravleniya lokomotivoremontnymi i vagonoremontnymi zavodami.
(Diesel engines)

SEMENENKO, I.F., kand.tekhn.nauk; KHENKINA, S.A.; SHUBIN, Ya.V.

Computing the gas losses in the joint operation of several underground gas producers. Trudy VNIIPodzemgaza no.13:17-21 '65. (MIRA 18:8)

1. Laboratoriya gornogeologicheskaya Vsesoyuznogo nauchno-issledovatel'skogo instituta podzemnoy gazifikatsii ugley.

SHUBIN, Ye.

Sodium salts of trioxyglutaric acid as new melting salt for cheese. Moloch. prom. 18 no.4:32-33 '57. (MLRA 10:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut maslodel'noy i syrodel'noy promyshlennosti.
(Sodium salts) (Glutaric acid) (Cheese)

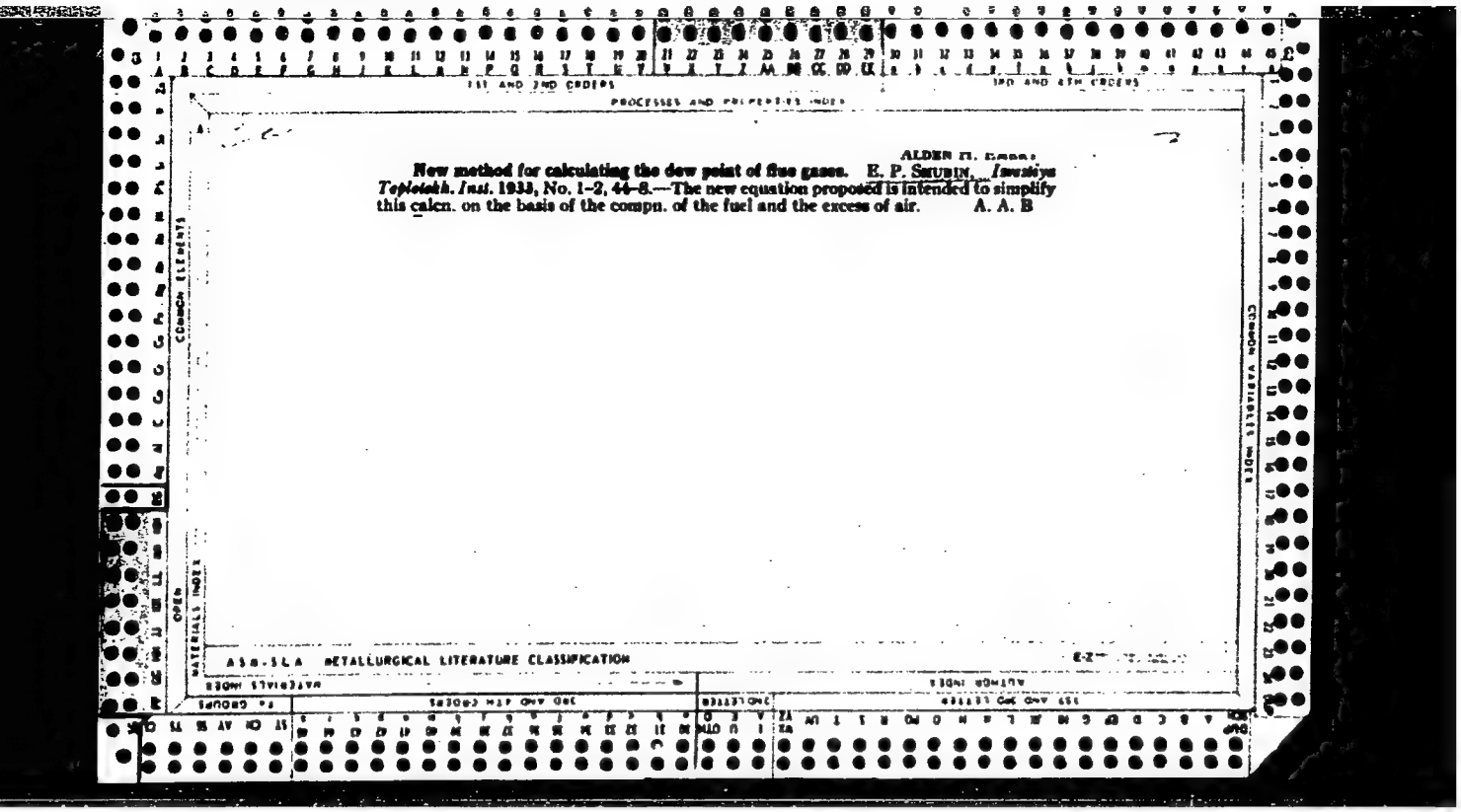
SHUBIN, Ye. M., Cand Tech Sci -- (diss) "Comparative study of the effect of salt-smelters on the sulfur smelting process and its nature." Moscow, 1960. 21 pp; (Moscow Technological Inst of the Butter and Milk Industry); 100 copies; price not given; (KL, 28-60, 162)

ACC NR: AT7003860

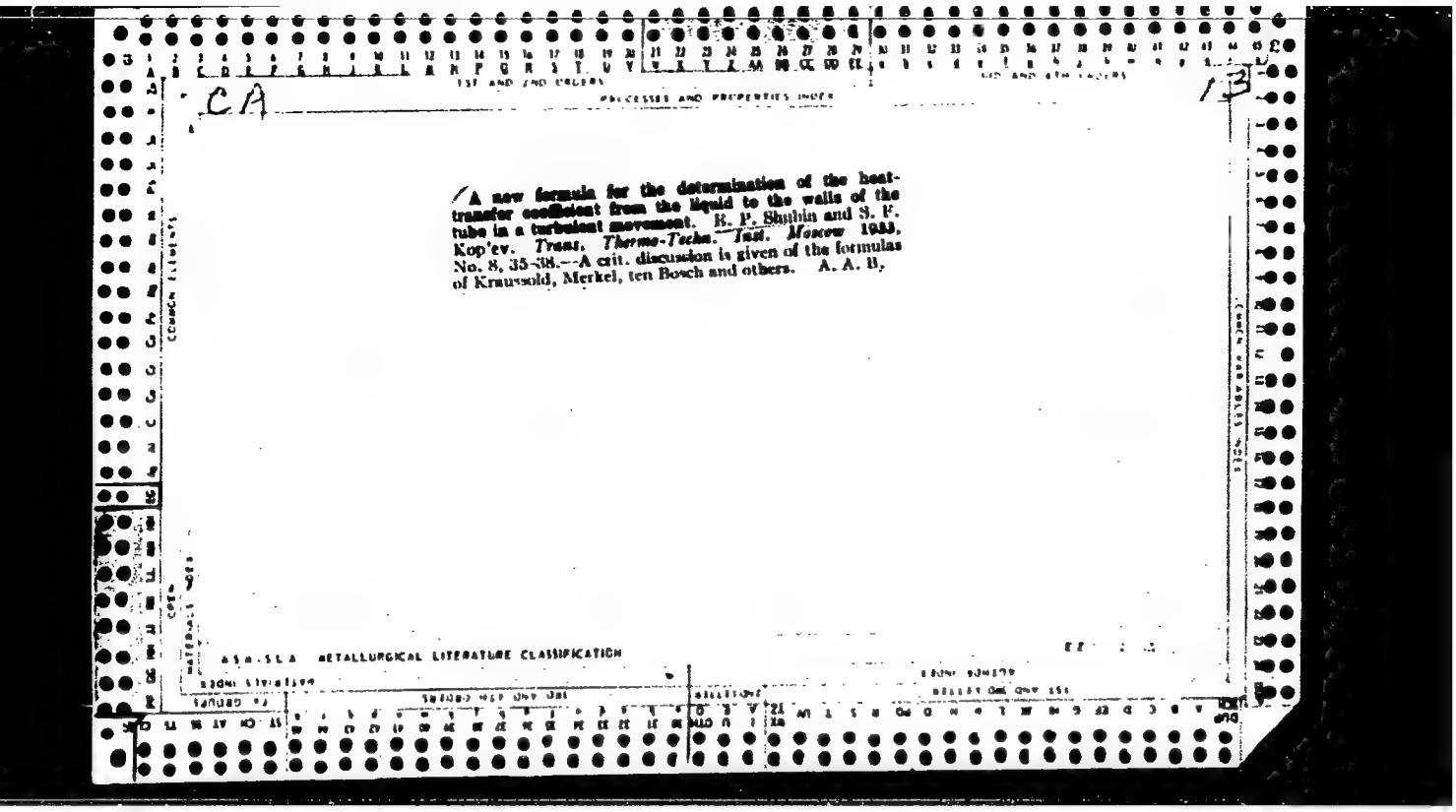
the finished product, the cooling conditions and the preservation qualities. The cheese paste produced was found to satisfy all requirements of quality and taste. The technical specifications instructions for manufacture and cost estimates for the cheese paste were determined and approved. The Tikhoretsk cheese factory, is presently equipped with special machinery to produce condensed buttermilk products including cheese paste. The participation of the Scientific associate I. G. Lopatina and N. I. Seredich in the study is acknowledged. Orig. art. has: 1 figure and 4 tables. [GC]

SUB CODE: 06 /SUBM DATE: none/ORIG REF: 004/

Card 2/2

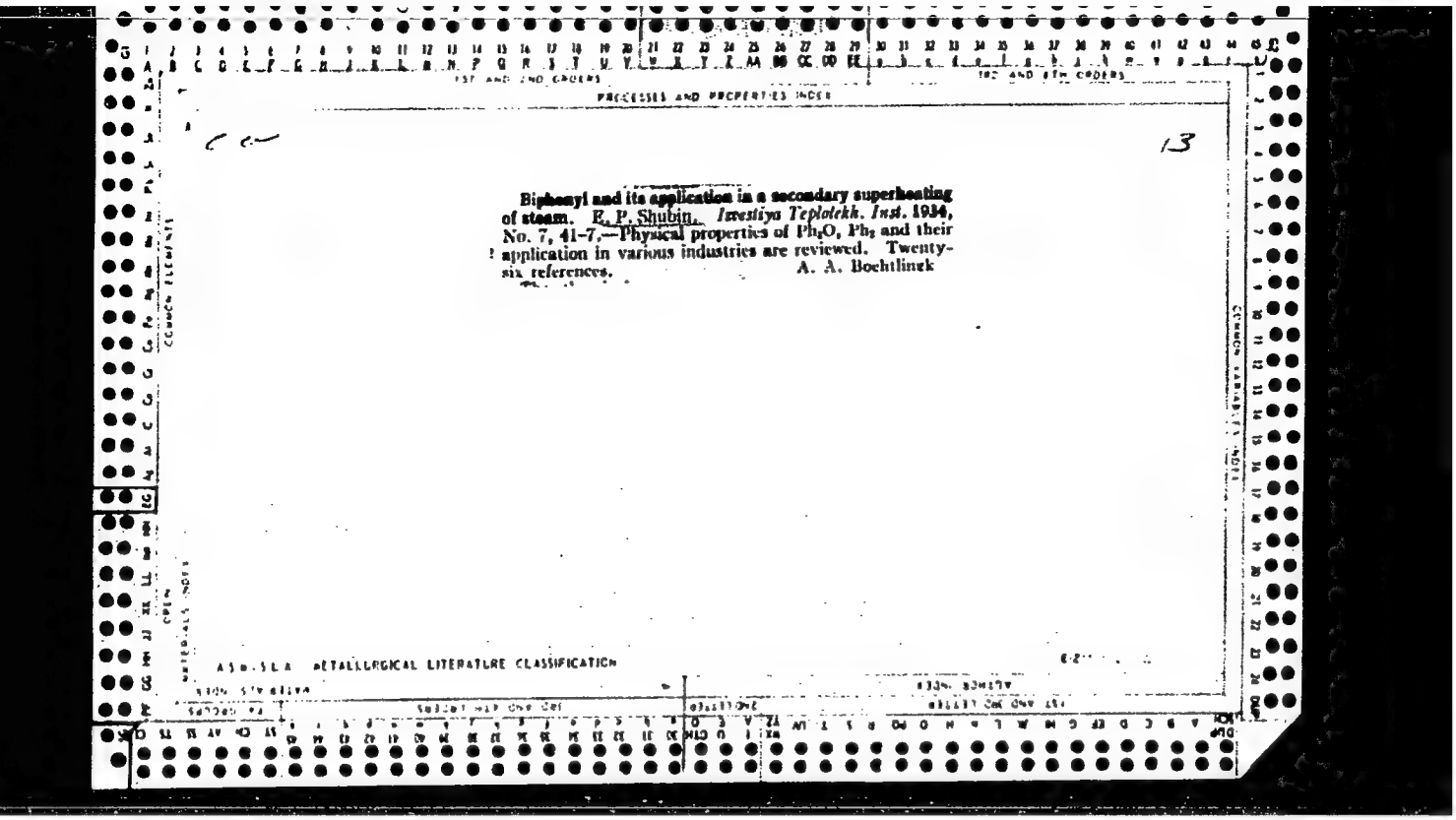


New method for calculating the dew point of flue gases. E. P. SAVUBIN. *Izvestiya Teplotekh. Inst.* 1933, No. 1–2, 44–8.—The new equation proposed is intended to simplify this calcn. on the basis of the compn. of the fuel and the excess of air. A. A. B



CA

A new formula for the determination of the heat-transfer coefficient from the liquid to the walls of the tube in a turbulent movement. B. P. Shubin and S. F. Kop'ev. *Treas. Thermo-Techn. Inst. Moscow* 1953, No. 8, 35-38.—A crit. discussion is given of the formulas of Kraussold, Merkel, ten Bosch and others. A. A. B.



PROCESSES AND PROPERTIES INDEX

13

Biphenyl and its application in a secondary superheating of steam. E. P. Shubin. *Izvestiya Teplotekh. Inst.* 1934, No. 7, 41–7.—Physical properties of Ph_2O, Ph_2 and their application in various industries are reviewed. Twenty-six references. A. A. Boehtlingk

METALLURGICAL LITERATURE CLASSIFICATION

SHUBIN, E. P.

Materials, installation methods and calculations of heat insulation of steam piping. Moskva, Gos. energ. izd-vo, 1948. 150 p. (50-35997)

TH1715.S5

PA 153T35

SHUBIN, YE. P.

USSR/Engineering - Insulation
Heating, Central

Nov 49

"Insulation in the Heating Networks of the USSR," Ye. P. Shubin, Engr, Kommunenergoproyekt, 2 pp

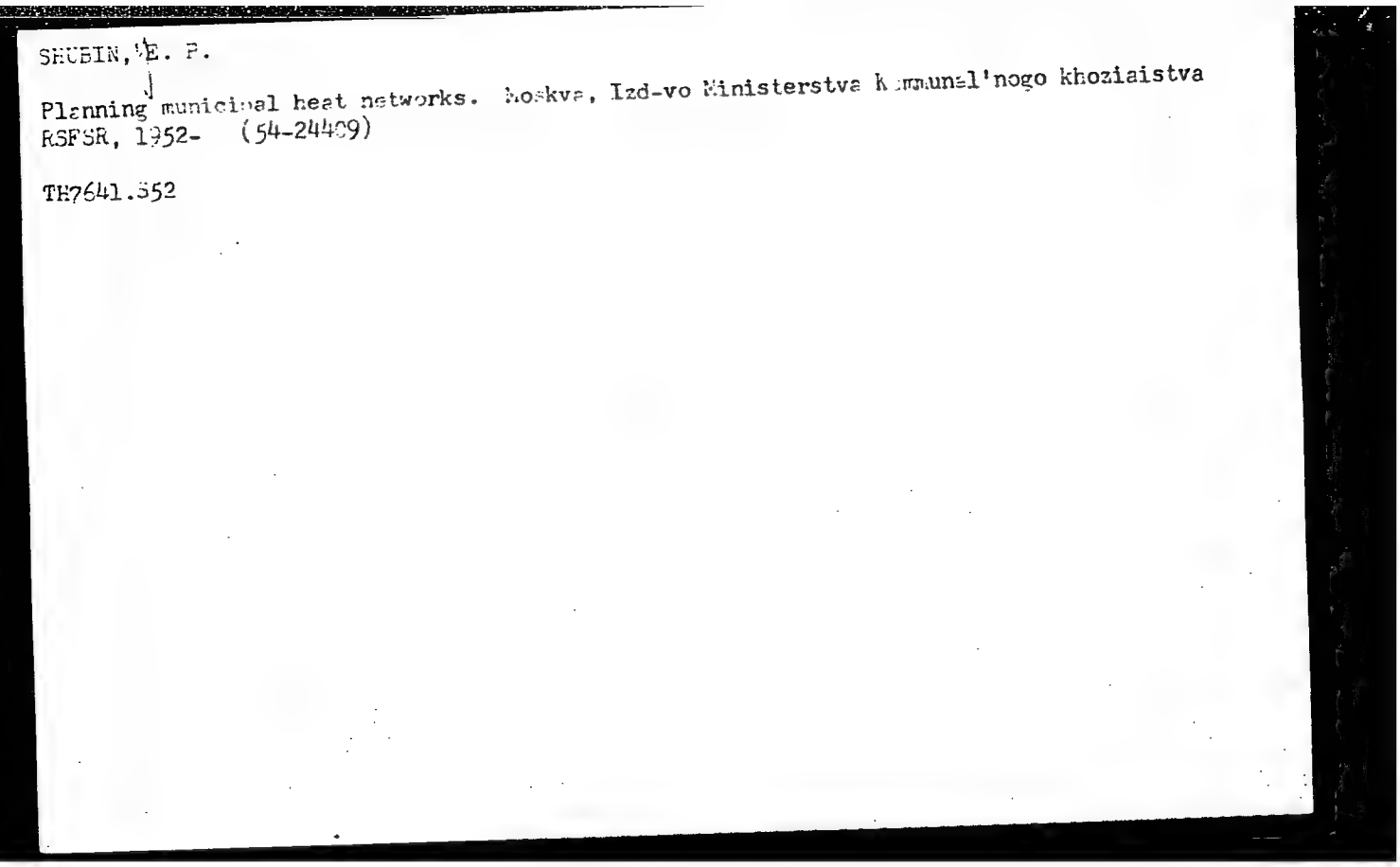
"Prom Energet" No 11

Even in a well-insulated central heating system the losses are 5-15%. If these losses could be lowered by 10% in the USSR, yearly saving would amount to 50,000 tons of standard fuel. Outlines history of insulation of central heating installations in USSR. Production of such new insulating materials as mineral wool is insufficient to keep pace with rapidly expanding networks.

153T35

YABLONSKIY,V.S., professor, doktor tekhnicheskikh nauk; SHUBIN,Ye.P., inzhener, retsenzent, redaktor; TROFIMOV,A.V., tekhnicheskiy redaktor

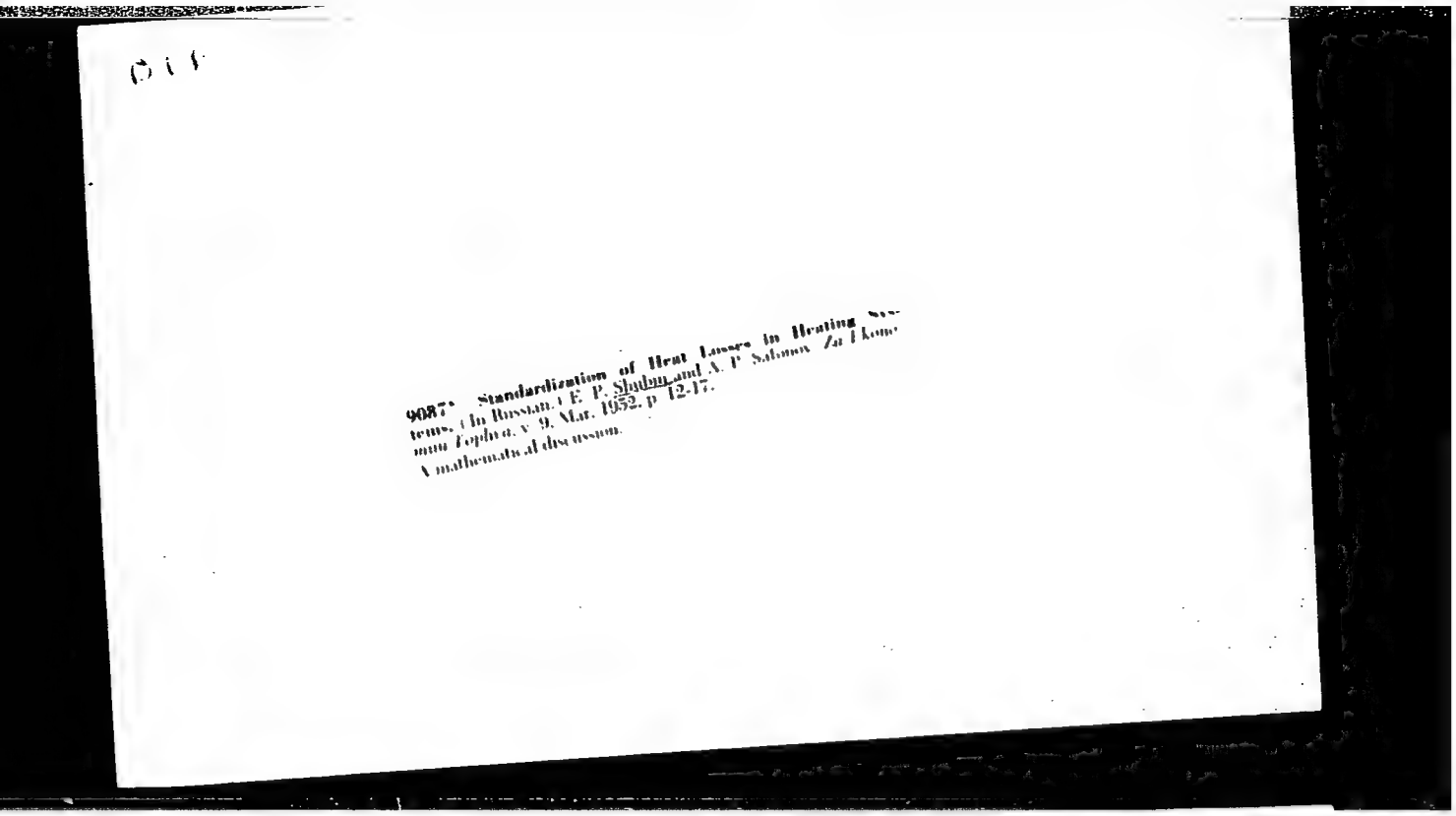
[Hydraulics for petroleum technicians] Gidravlika dlia neftianykh tekhnikumov. Izd.2-oe, dop. i ispr. Moskva, Gos.nauchno-tekhn.izd-vo neftianoi i gorno-toplivnoi lit-ry, 1951. 232 p. (MIRA 9:1)
(Hydraulic engineering) (Petroleum engineering)



SHUBIN, E. P.

Planning municipal heat networks. Moskva, Izd-vo Ministerstva Kommunal'nogo khoziaistva RSFSR, 1952- (54-24409)

TH7641.S52



9087- Standardization of Heat Losses in Heating Sys-
tems. (In Russian.) F. P. Shadura and A. P. Salmon. Za Tekh-
nich Teplot. v. 9, Mar. 1952. p. 12-17.
Mathematical discussion.

SHUBIN YE. P.

Heating from central stations

Technical and economic indexes of projected heating systems. Elek. sta. 23 No. 4, 1952. Inzh.

Monthly List of Russian Accessions, Library of Congress, August 1952, Unclassified.

DUNAYEVSKIY, N.I., professor; SHUBIN, Ye.P., inzhener.

Operation of heat and electric power plants in electric power systems with large capacity, hydroelectric power stations. Elek.sta. 24 no.11:23-25 N '53. (MLRA 6:11)

(Electric power stations)

SHUBIN, Ye.P., inzhener.

On the technical and economic indexes of planned heating networks. Elek.sta. 25 no.7:22-23 Jl '54. (MLRA 7:8)
(Heating from central stations)

SHUBIN, E.P.

AID P - 3890

Subject : USSR/Power Eng.

Card 1/1 Pub. 110-a - 11/17

Author : Shubin, E. P., Eng. of Giprokommunenergo (probable transl.: State Institute for Design and Planning of Communal Power Systems)

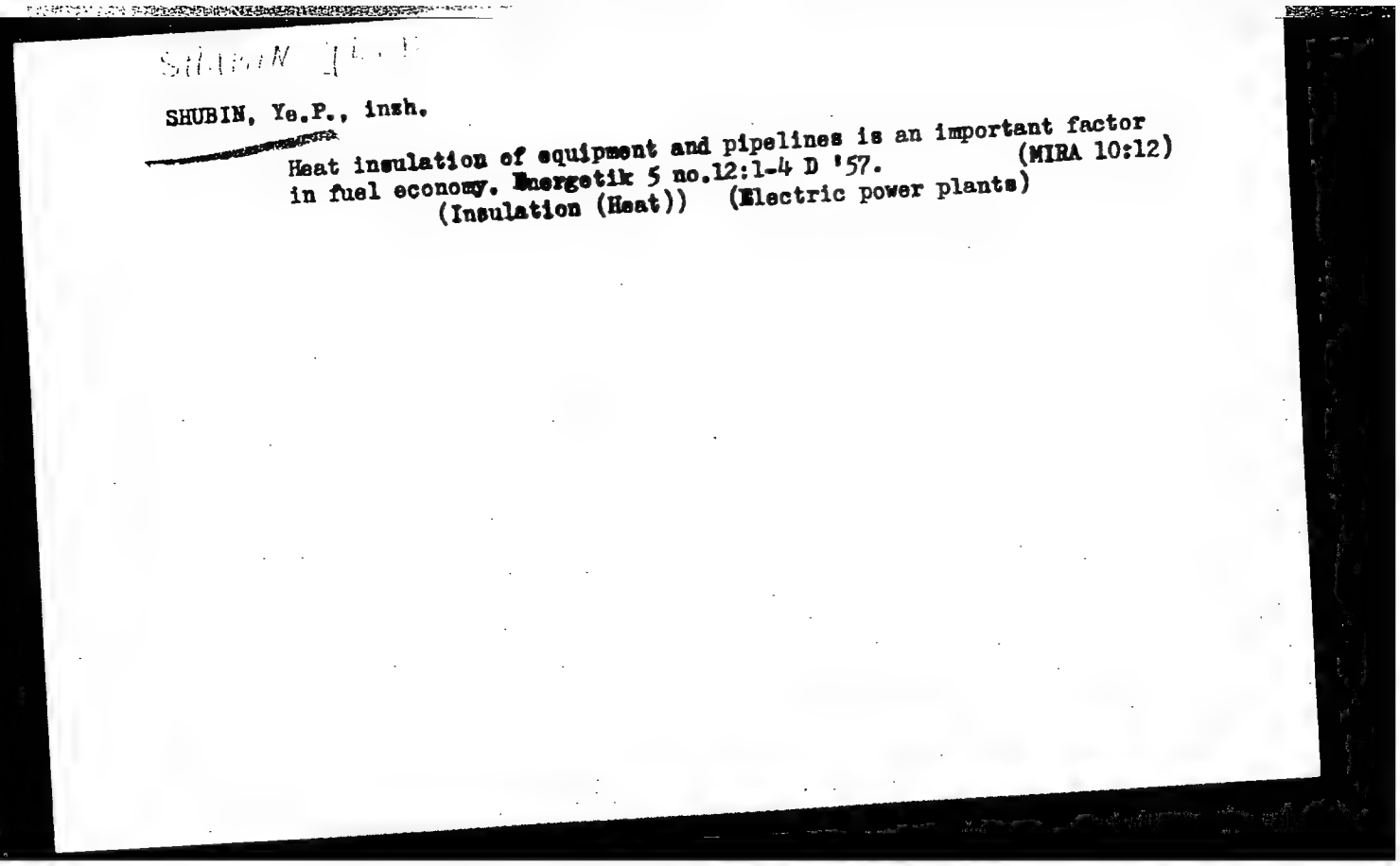
Title : Method for approximate solutions of transcedental equations in computing heat transfer equipment

Periodical : Teploenergetika, 11, 44-50, N 1955

Abstract : A mathematical analysis enabling the computation of heat transfer equipment by means of one approximated equation. One curve.

Institution : None

Submitted : No date



SHUBIN, Ye.P., inzh.

Heat insulation of equipment and pipelines is an important factor in fuel economy. Energetik 5 no.12:1-4 D '57. (MIRA 10:12)
(Insulation (Heat)) (Electric power plants)

SHUBIN, Ye.P.

New approximate thermal calculations for heat exchangers. Vod. i san. tekh.no.5:1-5 My '58. (MIRA 11:6)
(Heat exchangers)

SHUBIN, Ye.P., inzh.

Thermal characteristics of heat exchangers. Vod. i san. tekh. no.6:29-34 Je '62. (MIRA 15:7)

(Heat exchangers)

SHUBIN, Ye.P., inzh.

Selecting a system and equipment for covering peak thermal loads on heat and electric power plants. Nov. tekh. zhil.-kom. khoz.: Elek. i tepl. gor. no.5:64-77 '64. (MIRA 18:2)

1. Gosudarstvennyy respublikanskiy proyektnyy institut Ministerstva kommunal'nogo khozyaystva RSFSR.

LEVIN, Boris Isaakovich; SHUBIN, Yevgeny Petrovich; KHLYBOV, B.M., kand. tekhn. nauk, red.

[Heat exchangers of heat supply systems] Teploobmennye apparaty sistem teplosnabzheniia. Moskva, Energiia, 1965. 256 p. (MIRA 18:5)

L 13201-66 EWT(1)/EPF(n)-2 WW

ACC NR: AP6004432 SOURCE CODE: UR/0414/65/000/003/0054/0063

AUTHOR: Shubin, Ye. P. (Moscow)

ORG: none

TITLE: Principles of variation in the pressure impulse on the surface of a target near an explosive charge

SOURCE: Fizika goreniya i vzryva, no. 3, 1965, 54-63

TOPIC TAGS: explosion, pressure ~~impulse~~ effect, ~~charge shape~~ explosive charge

ABSTRACT: The effect of the properties of explosives, charge shape, charge density, target mass, and target material on the pressure impulse on the target surface in an explosion was studied theoretically and experimentally. Based on published theories and experimental data, the following total impulse I_s equations were derived. For cylindrical charges:

$$I_s \approx 0{,}8\rho D r^{1/6} h^{1/6},$$

where ρ, D, r, and h refer to the density of the explosive, detonation velocity, charge radius, and distance between the target and the detonation initiation point,

Card 1/2 UDC: 532.593

L 13201-66

ACC NR: AP6004432

respectively. For cubic shaped charges:

$$I_s \approx 1.4 \cdot 10^{-2} DC \text{ (kg/sec)},$$

where C is the charge weight. A general equation for the specific pressure impulse was also derived. Impulse pressures calculated by the equations derived for trotyl charges at the surface of a steel-plate target are in good agreement with published experimental data. To verify the derived equations and to obtain impulse equations for spherical and semispherical charges, experiments were conducted with detonations of spherical, semispherical, and cubic charges of explosives in contact with suspended plate targets made of steel, concrete, and sand in a thin metal shell of the same shape and size as the steel plate. Analysis of the tabulated results showed that the total impulse depends on the charge shape and the kind of explosive and is independent of the target material. The total pressure impulse on the target surface from the detonation of semispherical charges is about 1.5 times higher than from a cubic charge, all other conditions being equal. The impulse from the detonation of a spherical charge was only 7.5% higher than that of a cubic charge. Therefore, the total impulse from spherical and cubic charges may be calculated by the same equation. [PS]

Orig. art. has: 3 tables, 4 figures, and 24 formulas.

SUB CODE: 19/ SUBM DATE: 28Jan65/ ORIG REF: 006/ ATD PRESS: 4185

Card 2/2 JW

SHUBIN, Ye.M.

Some structural and mechanical properties of process cheese as determined by the flux salts used. Izv. vys. ucheb. zav.; pishch. tekh. no. 2:70-74 '61. (MIRA 14:5)

1. TSentral'nyy nauchno-issledovatel'skiy institut maslodel'noy i syrodel'noy promyshlennosti. Konservnaya labortoriya.
(Cheese)

22316

S/133/61/000/004/005/014
A054/A127

1.1300 1496, 1413, 1454

AUTHORS: Fayzullin, V. Kh., and Shubin, Ye. V.

TITLE: Cold-rolling of sheet-iron in continuous five-stand mills

PERIODICAL: Stal', no. 4, 1961, 333 - 336

TEXT: Since 1957 in the Magnitogorskiy metallurgicheskiy zavod (Magnitogorsk Metallurgical Plant) of the brands 25, 28 and 32 sheets have been cold-rolled on a continuous five-stand, four-roll mill from hot-rolled strips, 1.8 - 4.5 mm thick, 500 - 1,000 mm wide, on 400 - 500 mm diameter rolls. The rolling equipment has been improved in the past years. Reduction is now controlled automatically by flying contact micrometers, arranged after the first stand and transmitting impulses to the motor of the pressing screws when strip-thickness changes. The thickness of the strip after the last stand is measured by radio-isotope micrometers. The cold-rolled sheet is made of hot-rolled strips from 110 x 757 x 4,500 - 4,700 mm rimmed steel slabs, rolled on 1,450 mm mills, having the following composition: C: ≤0.09%; Mn: 0.30 - 0.45%; Si: traces; P ≤ 0.03%; S: ≤ 0.03%. Before pickling the hot-rolled strips they are cut and seam-welded. To obtain a high quality

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weld, the difference in thickness of the strip-ends must not be more than 0.15 - 0.2 mm. Tests were carried out in co-operation with V. V. Kashintsev, G. G. Kustobayev, V. I. Kulikov, G. A. Medvedev, K. V. Denisov and F. I. Zinchenko to reduce the difference in thickness by controlling the reduction of the rear end of the strip in the finishing stands of the 1,450 mill. The thickness of the rear ends of strips is now controlled automatically on the sixth stand of the 1,450 mill by lowering the pressing screws 1 mm. Owing to this the difference between the front and rear ends does not exceed 0.2 mm in about 70 - 75% of the strips; the maximum difference is also not more than 0.3 mm. This improved the quality of welding. The number of welds rolled without rupture increased to 80 - 85% as against 40 - 45% before automation. Before coiling up, the front end of the strip, the seams and the end of the coil are rolled at a low speed while rolling between the stands and between the last stand and the winch is performed place at maximum speed. High rolling speeds and great reductions result in considerable deviations in strip-thickness. When rolling at lower rates, the changes in strip-thickness can be offset by controlling the expansion of the strip. The mill is not yet provided with an expansion regulator for the accelera-

tion and deceleration periods. Therefore the interval of acceleration and braking should be as short as possible. A minimum accelerating and braking interval raises the productivity of the mill and makes the strip-sector with greater thickness shorter. The best minimum rate for rolling the welds and rear-ends of the strip is 4.5 - 5.0 m/sec. Extensive tests were also carried out to determine the optimum conditions of reduction (distribution of reduction on the stands, expansion between them, the convexity of the working rolls, etc.). After several variations a method was adopted, in which relative reduction on the first stand was reduced to 27% (in the first method this was 45%, in the second: 36%). Hereby it was possible to minimize the effect of the longitudinal difference in strip-thickness on the quality of the finished product. This reduction control is made possible by the application of the flying micrometers mentioned earlier. By increasing the relative reduction in the fifth stand it is possible to pass through slightly thicker strips between the fourth and fifth stand, hereby reducing the amount of ruptures. By applying this variant of reduction schemes, the rolling speed can be increased to 12 - 15 m/sec and the average output/hour from 19 tons (achieved with the first variant) to 36.1 tons. However, the application of a more intensive reduction scheme increased waste due to the

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warping of sheets, as the temperature of the rolls considerably increases in the fourth and fifth stand (45 - 50°C). These unstable heat conditions and the uneven distribution of lubricants over the width of the strip deteriorated its shape. Overheating of the rolls was prevented by feeding more cooling water on the fourth and fifth stand, while the best lubrication scheme was the following; before the third stand, from 4 nozzles (2 from below, 2 from above) and before the fourth and fifth stand from 8 nozzles (4 from above, 4 from below). The lower nozzles are mounted before the tensometers, the special rolls of which spread out the lubricant over the width of the strip. As lubricant a mixture of palmoil and water (1:4) is used. There are 3 figures and 1 table.

ASSOCIATION: Magnitogorsk metallurgicheskiy kombinat (Magnitogorsk Integrated Plant)

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PALOCHKIN, V.A., inzh.; FAYZULLIN, V.Kh., inzh.; SHUBIN, Ye.V., inzh.

Determining power parameters of a two-stand cold rolling mill and the effect of cold-rolling conditions on the strength properties of sheet steel. Sbor. trud. TSNIICHM no.28:62-73 '62. (MIRA 15:11)
(Rolling mills) (Sheet steel)

ACC NR: AP6030113 SOURCE CODE: UR/0421/66/000/004/0081/0088

AUTHOR: Ginevskiy, A. S. (Moscow); Ilizarova, L. I. (Moscow); Shubin, Yu. M. (Moscow)

ORG: none

TITLE: Investigation of the microstructure of a turbulent jet in a wake flow

SOURCE: AN SSSR. Izvestiya. Mekhanika zhidkosti i gaza, no. 4, 1966, 81-88

TOPIC TAGS: fluid mechanics, wake flow, turbulent jet, jet flow, wind tunnel, boundary layer equation

ABSTRACT: The microstructure of the main part of an axisymmetric turbulent jet in a wake flow is investigated experimentally over a wide range of the wake parameter $m = u_\delta/u_0$ (0.04, 0.21, 0.4, 0.52), where u_δ - is the velocity of wake flow and u_0 is the mean velocity at the nozzle exit. Measurements were made with "Disa Elektronik" apparatus (a constant-temperature anemometer), including two amplifiers and a correlator. The velocity profiles of three components of fluctuating velocity and Reynolds stress were measured in the main part of the jet. The values of the mean velocity and two components of fluctuating velocity were measured at a large number of points on the jet axis. The measured profiles of Reynolds stress are compared with corresponding profiles calculated from an experimentally determined mean velocity profile by means of turbulent boundary layer equations. The correlation

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ACCESSION NR: AT4048280 S/0000/64/000/000/0001/0006

AUTHORS: Maly*shev, A. V.; Shubin, Yu. P. B

TITLE: Equation of state of the nucleus derived from the spectra of inelastically scattered neutrons

SOURCE: Uravneniye sostoyaniya yadra iz spektrov neuprugo rasseyanny*kh neytronov *

TOPIC TAGS: state equation, temperature dependence, neutron scattering, inelastic scattering, nuclear level density

ABSTRACT: The earlier experimental data on nuclear temperatures (I. V. Gordeyev et al., Yaderno-fizicheskiye konstanty* [Nuclear-Physics Constants], 1963; E. Erba et al., Nuovo Cim. XXII, 1237, 1961) are determined from the spectra of inelastic scattering of 2.5--15 MeV neutrons by the nuclei Fe, Cu, Cd, Sn, Ta, Au, W, and Bi. It is assumed that the spectrum of the successively emitted neu-

Card 1/2 * [NO SOURCE GIVEN]

24.7500

AUTHORS: Garber, R. I., Gindin, I. A., Kovalev, A.I. and [illegible] SOV/126-[illegible]

TITLE: Study of the Plastic Properties of Monocrystals of Beryllium. II.

PERIODICAL: Fizika metallov i metallovedeniye, 1959, Vol 8, Nr 1, pp 130-139 (USSR)

ABSTRACT: In the present paper slip processes in monocrystals of beryllium which have not been submitted to preliminary twinning have been studied and the relationship between slip and fracture of beryllium in the white temperature range has been established. Specimens were made from monocrystals of a beryllium block grown by slow cooling of the melt in vacuum. The purity of the original material was 99.7%. Cutting of the block was carried out by an electro-corundum disk on a grinding machine. The worked layer was removed by etching the beryllium with an aqueous solution of hydrofluoric acid. The specimens had the shape of a rectangular prism, 3.5 x 4.0 x 7.0 mm. All prism facets were ground. Two side faces (3.5 x 7.0 mm - type-a face and 4.0 x 7.0 mm - type-b face) were polished. From the Lauegrams it was evident that the crystals were undistorted. The experi-

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